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IS 11787 (1986): Paddy Dehusker, Rubber Roll Type [FAD 20: Agriculture and Food Processing Equipments]

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SPECIFICATION FOR PADDY DEHUSKER, RUBBER ROLL TYPE

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Indian Standard

SPECIFICATION FOR PADDY DEHUSKER, RUBBER ROLL TYPE

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Indian Standard

SPECIFICATION FOR PADDY DEHUSKER, RUBBER ROLL TYPE

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 30 June 1986, after the draft finalized by the Agricultural Produce Milling Machinery Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 With the increase of paddy production and rapid modernization of rice mills, rubber roll type paddy dehuskers are being extensively used throughout the country. A need was felt to prepare this standard, to help manufacturers to produce quality machines.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard stpecifies material, performance and other requirements for paddy dehusker, rubber roll type.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in **2** of IS : 9049-1979† shall apply.

3. MATERIAL

3.1 The material for rubber roll shall be as given in IS : 8427-1977‡. The material for other components shall be as given in col 3 of Table 1. The material may conform to the relevant Indian Standards given in col 4 of Table 1.

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*Rules for rounding off numerical values (*revised*).

†Test code for paddy dehusker, rubber roll type.

‡Specification for rubber roll for paddy dehusker.

TABLE 1 MATERIAL OF CONSTRUCTION

(*Clause* 3.1)

SL No.	COMPONENT	MATERIAL	RELEVANT IS:
(1)	(2)	(3)	(4)
i)	Feeding hopper	Mild steel	IS : 226-1975*
ii)	Main damper	Mild steel	do
iii)	Bearing housing	Cast iron	IS : 210-1978†
iv)	Pulleys	Cast iron	do
v)	Spring	Spring steel	IS : 4454 (Part 1)-1975‡
vi)	Gear box	Cast iron	IS : 210-1978†
vii)	Gear	Carbon steel	—
viii)	Doors	Mild steel	IS : 226-1975*
ix)	Roller box	Cast iron	IS : 210-1978†
x)	Discharge hopper	Mild steel	IS : 226-1975*
xi)	Blade holder	Cast iron	IS : 210-1978†
xii)	Blower	Mild steel Cast iron	IS : 226-1975* IS : 210-1978†
xiii)	Plummer block	Cast iron	IS : 210-1978†
xiv)	Blower shaft	Mild steel	IS : 226-1975*

*Specification for structural steel (standard quality) (*fifth revision*).

†Specification for grey iron castings (*third revision*).

‡Specification for steel wire for cold formed springs: Part 1 Patented and cold drawn steel wires — Unalloyed (*first revision*).

4. PERFORMANCE REQUIREMENTS

4.1 The dehusker shall be operated in accordance with **8.1** of IS : 9049-1979*. During the no-load run, the visual observations shall not indicate the following:

a) Presence of any marked vibration during operation,

b) Presence of any undue noise in the dehusker,

c) Any unusual heating of any component,

d) Any slippage of belts,

e) Vibration in fan running,

f) Non smooth running of shafts in their respective bearings, and

g) Any marked unusual wear or slackness in any components.

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*Test code for paddy dehusker, rubber roll type.

4.2 When tested in accordance with **9.1** of IS : 9049-1979*, the rated capacity per kWh energy consumed for raw or parboiled paddy shall be not less than 400 kg for parboiled paddy and 300 kg for raw paddy. Various adjustments, clearances and speeds for the rated capacity shall be declared by the manufacturer.

4.2.1 The brokens shall be not more than 1·0 percent.

4.2.2 The rice shall not get any visible stain.

4.2.3 During and after the capacity test, the visual observations shall not indicate the following:

a) Observations given in **4.1** (a) to (g), and
b) Leakage of grain from the dehusker.

4.3 When tested in accordance with **9.2** of IS : 9049-1979*, no breakdown and defects shall develop in any unit of the dehusker.

5. OTHER REQUIREMENTS

5.1 The sheet used in construction of various parts shall be of minimum 0·5 mm thickness.

5.2 The axle shaft shall be finished to close tolerances at the bearing, and shall be properly aligned.

5.3 Provision shall be made for lubrication of bearings and they shall be dust proof.

5.4 A feed regulating and spreading system shall be provided.

5.5 Adequate arrangements for cooling of rubber rolls during operation shall be provided so that the temperature of the rubber roll housing shall not exceed 60°C.

NOTE — This requirement may be tested during load-run-test by putting the thermometer on the outside surface of the housing.

5.6 Various controls shall be easily accessible and capable of being locked in a choosen position.

5.7 In case of belt drive, provision shall be made for belt tightening.

5.8 Provision for inspection window/cover may be made.

5.9 Transmission guards shall be provided to prevent accidental contact of persons or parts of clothing being caught in the transmission system, unless the system is so constructed or placed as to be safe without guards.

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*Test code for paddy dehusker rubber roll type.

5.9.1 The guards shall be so designed as not to hinder in easy adjustment, servicing and operation of dehusker.

5.9.2 It is preferable that all guards shall be either permanently attached or firmly secured to prevent their removal without the aid of the tools. The servicing and adjustments should be possible without complete removal of the guards.

5.9.3 The guards shall have sufficient strength to support load of 1 200 N applied at any point over an area of 0·1 m^2 without permanent set.

NOTE — Depending upon space available, area and load may be correspondingly increased or decreased for testing purpose.

5.10 Provision for the adjustment of roller gap shall be made.

5.11 The rubber rolls shall conform to the requirements given in IS : 8427-1977*. Type and size code shall be declared by the manufacturer. Arrangement shall be made for easy replacement as well as locking of the rollers.

5.12 The dehusker shall be provided with the operator's manual (*see* **4.2** of IS : 8132-1983†). Manual shall also contain the information given in Appendix A of IS : 9049-1979‡.

6. WORKMANSHIP AND FINISH

6.1 Welding used for jointing different components shall not be porous and shall be smooth (*see* IS : 816-1969§).

6.2 Any sharp corners and protruding fasteners shall be avoided.

6.3 Components of the dehusker shall be finished smooth and properly painted.

7. MARKING AND PACKING

7.1 Marking — Each dehusker shall be marked with the following particulars:

a) Manufacturers' name and recognized trade-mark;
b) Model number;
c) Batch, code or serial number;
d) Power rating, kW; and
f) Rated input capacity.

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*Specification for rubber roll for paddy dehusker.

†Guidelines for presentation of operators manual and technical publications (*first revision*).

‡Test code for paddy dehusker, rubber roll type.

§Code of practice for use of metal arc welding for general construction.

7.1.1 Each dehusker may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

7.2 Packing — The dehusker or its components shall be packed as agreed to between the purchaser and the supplier for safe handling in transit and storage.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

Quantity	*Unit*	*Symbol*
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

Quantity	*Unit*	*Symbol*
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

Quantity	*Unit*	*Symbol*	*Definition*
Force	newton	N	1 N = 1 kg.m/s^2
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m^2
Frequency	hertz	Hz	1 Hz = 1 c/s(s^{-1})
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m^2